REMARKS

By the present amendment, claims 1, 5 and 16 have been amended to obviate the examiner's objections thereto and/or to further clarify the concepts of the present invention. In so doing, the subject matter of dependent claim 6 has been incorporated into the independent claim 1 and, accordingly, dependent claim 6 has been canceled.. The applicant respectfully submits that no new matter has been added. It is believed that this Amendment is fully responsive to the Office Action dated July 23, 2008. Entry of these amendments is respectfully requested.

In the Office Action, the drawings were objected to as not showing each and every feature of the subject claims as is required by U.S. patent practice. In particular, it was alleged that drawings, specifically Figure 4, did not show the subject matter of dependent claim 5 where the transparent coat layer did not cover the entire area between the adhesive layer and the layer 2 and layer 3.

In response, it would appear that the subject matter of claim 5 has been misinterpreted. For further clarity, claim 5 has been amended herein. It is submitted that the subject matter of amended claim 5 is shown in the drawings.

In addition, claim 5 was rejected under the second paragraph of 35 USC § 112 as being indefinite. In particular, it was alleged that it was not clear as to the recitations in this claim. For the reasons discussed above, withdrawal of the rejection under second first paragraph of 35 U.S.C. § 112 is respectfully requested.

Claims 1-3 and 7 were rejected under 35 USC § 102(a) as being anticipated by the patent to Su et al. In addition, claim 6 was rejected under 35 USC § 103(a) as being unpatentable over the same patent to Su et al in view of the patent publication to Seo et al. In making the former rejection, it was asserted that the cited patent teaches a transparent multilayer structure as claimed. In so doing, it was alleged that the smooth base material according to the patent is inherent "peelable" as claimed.

In the latter rejection, it was acknowledged that the Su et al patent does not specifically teach the diameter of the fine oxide particles included in the transparent conductive layer. It then was asserted that it would be obvious to use particles of the size disclosed in the Seo et al patent in such a conductive layer. Reconsideration of these rejections in view of the above claim amendments and the following comments is respectfully requested.

Before discussing the rejection in detail, a brief review of the presently claimed invention may be quite instructive. As is now set forth in the present claims, the subject invention relates to a transparent conductive multi-layer structure usable in transparent electrode portions of devices such as dye-sensitized solar cells and organic electroluminescent devices, and devices making use of the transparent conductive multi-layer structure. In this regard, attention is specifically directed to lines 11-16 on page 1 of the specification as filed.

Furthermore, the transparent conductive multi-layer structure according to the present invention is characterized by having the following construction to enable use in transparent electrode portions of dye-sensitized solar cells and organic electroluminescent devices. That is, the transparent conductive multi-layer structure comprises a smooth base material, a transparent conductive layer

formed on the smooth base material by coating, an auxiliary electrode layer formed in a pattern on the transparent conductive layer, and a transparent substrate joined to the transparent conductive layer and auxiliary electrode layer through an adhesive layer; the smooth base material being peelable from the transparent conductive layer.

In addition, as is shown in Fig. 8, a dye-sensitized solar cell is shown in which the transparent conductive multi-layer structure of the presently claimed invention has been utilized in a transparent electrode portion of this dye-sensitized solar cell after the smooth base material had been peeled off. In this respect, specific attention is directed to line 24 on page 33 to line 14 on page 34 of the present specification.

Furthermore, in order to be usable in transparent electrode portions of dye-sensitized solar cells and organic electroluminescent devices in the transparent conductive multi-layer structure of the present invention, the transparent conductive layer is directly disposed on the smooth base material; the smooth base material comprises plastics such as polyethylene terephthalate (PET) or the like such that the smooth base material is peelable from the transparent conductive layer; and the transparent conductive layer formed by coating comprises conductive fine oxide particles of from 1 to 100 nm in average particle diameter and a binder component. As to this feature of the invention, reference is made to lines 7-17 on page 26 of the specification.

In view of the above, it is submitted that the invention as set forth in amended claim 1 and the claims dependent thereon is not taught or suggested by the patent to Su et al alone or in combination with the publication to Seo et al.

More specifically, the Su et al patent relates to a front panel of a plasma display panel (PDP) as is set forth in the abstract thereof. Further, with respect to the disclosure regarding Fig. 5A, it was suggested in the Action that the transparent conductive multi-layer structure of present claim 1 is disclosed in the patent to Su et al. In so doing, the following was alleged:

The "smooth base material 1" in the present claimed invention corresponds to a "MgO layer 45" of Su et al patent;

The "transparent conductive layer 2" in the presently claimed invention corresponds to a "protecting electrode 54" of the patent ;

The "auxiliary electrode layer 3" in the present claimed invention corresponds to an "auxiliary electrode 52" of the patent;

the "adhesive layer 4" in the present claimed invention corresponds to a "buffer layer 43" of the patent; and

the "transparent substrate 5" in the present invention corresponds to a "glass substrate 42" of the patent.

However, it is submitted that the transparent conductive multi-layer structure of claim 1 significantly differs in construction from the front plate of a PDP in the patent to Su et al. Among other things, the patent does not disclose the transparent conductive multi-layer structure of present claim 1.

Specifically, attention is directed to the following with respect to the transparent conductive multi-layer structure as claimed:

In the front panel of Su et al patent, a "dielectric layer 44" is interposed between the "MgO layer 45" and the "protecting electrode 54" as shown in Fig. 5A. Thus, the front panel of device according to the Su et al patent is differs in construction from the transparent conductive multi-layer structure of present claim 1.

More specifically, in the transparent conductive multi-layer structure of present claim 1, the "transparent conductive layer 2" is directly disposed on the "smooth base material 1," and the "smooth base material 1" is peelable from the "transparent conductive layer 2" so as to be usable in transparent electrode portions of dye-sensitized solar cells and organic electroluminescent devices. In distinct contrast, in the front panel of the device according to the patent to Su et al, the "dielectric layer 44" is interposed between the "MgO layer 45" and the "protecting electrode 54." Consequently, this structure does not assume that the "MgO layer 45" may be peeled from the "protecting electrode 54."

In the transparent conductive multi-layer structure of present claim 1, the "smooth base material 1" comprises plastics, and the "transparent conductive layer 2," which has been formed by coating of a transparent conductive layer forming coating fluid and comprises conductive fine oxide particles of from 1 to 100 nm in average particle diameter and a binder component, is directly disposed on the "smooth base material 1." In distinct contrast, in the front panel of the device according to the patent to Su et al, the "MgO layer 45" is deposited on the "dielectric layer 44" by evaporation or sputtering as is set forth on lines 40-42 at column 8. Therefore, in the front panel of device according to the patent to Su et al, the material (MgO) differs which corresponds to the "smooth base material 1" (constituted of plastics such as PET or the like) in the present invention. In addition, the "MgO layer 45" is deposited by evaporation or sputtering and is thus structured without assuming that it may

be peeled from the "dielectric layer 44." In view of the foregoing, it is submitted that the "MgO layer 45" of the patent to Su et al cannot be equated with the "smooth base material 1" in the presently claimed invention.

In the transparent conductive multi-layer structure as now defined by independent claim 1, the "transparent conductive layer 2" formed by coating comprises conductive fine oxide particles of from 1 to 100 nm in average particle diameter and a binder component. In contrast, in the front panel according to the patent to Su et al, the "protecting electrode 54" is made of "metal oxides such as ITO, SnO_2 or ZnO" is formed by a sputtering process as is set forth on lines 21-23 at column 7 and lines 62-63 at column 7 thereof. Consequently, the "protecting electrode 54" of the patent to Su et al is not the same as the "transparent conductive layer 2" according to the presently claimed invention.

Additionally, the abstract of the Su et al patent discloses that the "protecting electrode 54" is formed to prevent a bonding auxiliary electrode of the auxiliary electrode from being easily oxidized during a high temperature process. In view of this statement, the "protecting electrode 54" cannot be equated with the "transparent conductive layer 2" in the presently claimed invention which is used in transparent electrode portions of dye-sensitized solar cells and organic electroluminescent devices.

In the transparent conductive multi-layer structure as is now set forth in independent claim 1, the "adhesive layer 4" is used to join the transparent substrate 5 to the transparent conductive layer and auxiliary electrode layer. This adhesive layer comprises cold-setting resins such as of an acrylic type, an epoxy type and so on, thermosetting resins, ultraviolet-curable resins and the like as is disclosed on lines 1-13 on page 28 of the present specification.

In distinct contrast, in the front panel of the device according to the patent to Su et al, the "buffer layer 43" is used as a layer for embedding the "auxiliary electrode 52" thereinto as is set forth on lines 17-18 at column 6. In addition, it is made of a dielectric material such as silicon oxide or the like as is set forth on lines 47-48 at column 7 of the patent.

Thus, the "buffer layer 43" according to the Su et al patent differs, both in terms of the function and constituent material, from the "adhesive layer 4" in the presently claimed invention. As a consequence, the "buffer layer 43" of as described in the patent to Su et al cannot be equated with the "adhesive layer 4" in the presently claimed invention.

In summary, and as discussed above, the "smooth base material 1" as defined in claim 1 of the subject application cannot be equated with the "MgO layer 45" of patent to Su et al. In addition, the "transparent conductive layer 2" cannot be equated with the "protecting electrode 54" according to the of Su et al patent. Further, the "adhesive layer 4" in the present invention cannot be equated with the "buffer layer 43" of the Su et al patent. In addition, in the front panel according to the patent, its structure does not assume that the "MgO layer 45" may be peeled from the "protecting electrode 54." Thus, the front panel of the device according to the patent to Su et al is not usable in transparent electrode portions of dye-sensitized solar cells and organic electroluminescent devices.

Further, since the transparent conductive multi-layer structure as defined by independent claim 1 is not disclosed in the patent to Su et al, it is submitted that the transparent conductive multi-layer structure of present claim 2 depending from present claim 1 is not disclosed as well.

The transparent conductive multi-layer structure of depenent claim 3 also is not disclosed by the cited patent. In the rejection, it was alleged that the "auxiliary electrode layer comprising fine metal particles and a binder component" of present claim 3 was disclosed in Fig. 5A and on lines 50-58 at column 7 of the Su et al patent. However, the cited portion of column 7 merely states that an auxiliary electrode 52 is deposited into the trench 53 via evaporation or sputtering, but does not disclose that the auxiliary electrode layer is formed of fine metal particles and a binder component.

With regard to the transparent conductive multi-layer structure of dependent claim 7, it was alleged that the disclosure as to "the transparent conductive layer has been subjected to rolling to make the conductive fine oxide particles dense" was shown in Fig. 5A and on lines 21-23 at column 7 of Su et al patent.

However, the cited portion merely sets forth that "The protecting electrode 54 is made of metal oxides as ITO (Indium Tin Oxide), SnO_2, or zinc oxide (ZnO). The protecting electrode 54 can be transparent or not." There is no disclosure that the transparent conductive layer (corresponding to the protecting electrode 54 of the Su et al patent) has been densified by rolling. Further, lines 62-63 at column 7 only disclose that "a protecting electrode 54 is formed by a sputtering and photolithographing process." It is submitted that such discloses nothing with respect to rolling.

It is submitted that the above noted teaching deficiencies are not supplied by the patent publication to Seo et al (US Pub. No. 2003/0,215,651). In particular, paragraph 0021 of the Seo et al publication discloses a conductive layer comprising conductive fine oxide particles of from 1 to 100 nm in average particle diameter and a binder component such as tetraethyl-ortho-silicate or the like. However, it is submitted that the transparent conductive multi-layer structure as defined by present claim 1 which now includes the subject matter of dependent claim 6, is not disclosed in the Su et al publication. Thus, even if the disclosure of the Su et al publication is taken in combination with the patent to Seo et al, it is submitted that the transparent conductive multi-layer structure as defined by present claim 1 would not be achieved.

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 103(a) and allowance of claims 1-5, 7-9, 16 and 17 as amended over the cited patent publications are respectfully requested.

Applicants acknowledge with appreciation the indiction that claims 4, 5, 8, 16 and 17 were only objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

In the event that this paper is not timely filed, the applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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